UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>10 January 2002</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-36</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-36</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>10 January 2002</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

■

1.   Claims 1-36 have been examined.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3.   Claims 1-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Van Oorschot et al. U.S. Pat. No. 6134550 (hereinafter VO).

4.   As per claim 1, VO discloses a method for processing digital certificates within a data processing system, the method comprising: determining a set of trust relations between a set of certificate authorities (CAs) in a trust web (VO: column 4 lines 57-63); representing the set of trust relations in an adjacency matrix, wherein a cell in the adjacency matrix corresponds to a pair of certificate authorities (VO: column 4 lines 59-63 and figures 7a and 7b); performing a transitive closure computation on the adjacency matrix to generate a set of inter-CA trust path indicators that represent whether a trust path exists between a pair of certificate authorities (VO: column 4 lines 52-57); and performing an all-pairs-shortest-paths computation on the adjacency matrix to generate multiple sets of shortest trust paths between the certificate authorities (VO: column 4 lines 52-57).

5.   As per claim 2, VO discloses the method of claim 1. VO further discloses initiating a

secure communication with a requester; receiving a digital certificate for the requester; and

validating the digital certificate in accordance with an inter-CA trust path indicator and/or a

shortest trust path (VO: column 5 lines 14-25).

6.   As per claim 3, VO discloses the method of claim 2. VO further discloses wherein the

digital certificate is formatted according to X.509 standards (VO: figure 3 and column 6 line 22).

7.   As per claim 4-9, claims 4-9 encompass the same scope as claims 1-3. Therefore, claims

4-9 are rejected based on the same reasons set forth above in rejecting claims 1-3.

8.   As per claim 10, VO discloses a method for operating certificate authorities within a data

processing system, the method comprising: establishing at a first certificate authority (CA) a trust

relation with a second certificate authority (VO: column 5 lines 16-24); and sending a trust

relation update message to a central trust web agent, wherein the central trust web agent

processes trust relation information for a set of certificate authorities within a trust web (VO:

column 5 lines 53-61 and column 6 lines 1-11).

9.   As per claim 11, VO discloses the method of claim 10. VO further discloses receiving at

the first certificate authority from the central trust web agent a set of inter-CA trust path

indicators that represent whether a trust path exists between the first certificate authority and

other certificate authorities in the trust web (VO: column 9 lines 45-47); and receiving at the first

certificate authority from the central trust web agent a set of shortest trust paths between the first

certificate authority and other certificate authorities in the trust web (VO: column 5 lines 62-67).

10.   As per claim 12, VO discloses the method of 11. VO further discloses initiating a secure

communication with a requester (VO: column 5 lines 14-25); receiving a digital certificate for

the requester; and validating the digital certificate in accordance with an inter-CA trust path

indicator and/or a shortest trust path (VO: column 11 line 61 – column 12 line 14).

11.   As per claim 13, VO discloses the method of claim 12. VO further discloses wherein the

digital certificate is formatted according to X.509 standards (VO: figure 3 and column 6 line 22).

12.   As per claim 14-21, claims 14-21 encompass the same scope as claims 10-13. Therefore,

claims 14-21 are rejected based on the same reasons set forth above in rejecting claims 10-13.

13.   As per claim 22, VO discloses a method for operating certificate authorities within a data

processing system, the method comprising: receiving at a central trust web agent from a

certificate authority (CA) a trust relation update message, wherein the central trust web agent

processes trust relation information for a set of certificate authorities within a trust web, and

wherein the trust relation update message indicates a change in a set of trust relations for the

certificate authority (VO: column 5 lines 54-57 and column 7 line 62 – column 8 line 13); and

modifying a set of trust relations for the set of certificate authorities within the trust web based

on an indicated request in the trust relation update message (VO: column 5 lines 54-57 and column 7 line 62 – column 8 line 13).

14.   As per claim 23, VO discloses the method of claim 22. VO further discloses sending to the certificate authority from the central trust web agent a set of inter-CA trust path indicators that represent whether a trust path exists between the certificate authority and other certificate authorities in the trust web (VO: column 9 lines 45-47); and sending to the certificate authority from the central trust web agent a set of shortest trust paths between the certificate authority and other certificate authorities in the trust web (VO: column 5 lines 62-67).

15.   As per claim 24, VO discloses the method of claim 22. VO further discloses representing the set of trust relations in an adjacency matrix, wherein a cell in the adjacency matrix corresponds to a pair of certificate authorities (VO: column 4 lines 59-63 and figures 7a and 7b); performing a transitive closure computation on the adjacency matrix to generate a set of inter-CA trust path indicators that represent whether a trust path exists between a pair of certificate authorities (VO: column 4 lines 52-57); and performing an all-pairs-shortest-paths computation on the adjacency matrix to generate multiple sets of shortest trust paths between the certificate authorities (VO: column 4 lines 52-57).

16.   As per claim 25-30, claims 25-30 encompass the same scope as claims 22-24. Therefore, claims 25-30 are rejected based on the same reasons set forth above in rejecting claims 22-24.

17.   As per claim 31, VO discloses a method for operating certificate authorities within a data processing system, the method comprising: generating trust paths at a central trust web agent for certificate authorities in a trust web using a greed algorithm (VO: column 4 lines 59-63 and column 7 lines 17-27: Dijkstra's algorithm); and disseminating the generated trust paths by the central trust web agent to the certificate authorities (VO: column 5 lines 16-25).

18.   As per claim 32, VO discloses the method of claim 31. VO further discloses wherein the trust paths are generated when a new certificate authority joins the trust web or when a certificate authority changes a trust relation with another certificate authority (VO: column 8 lines 2-12).

19.   As per claim 33-36, claims 33-36 encompass the same scope as claims 31 and 32. Therefore, claims 33-36 are rejected based on the same reason set forth above in rejecting claims 31 and 32.

Conclusion

20.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

        Weeks et al. U.S. Pub. No. 20020087859 discloses trust management systems and method in which certificate path is discovered and reduced.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shin-Hon Chen whose telephone number is (571) 272-3789. The examiner can normally be reached on Monday through Friday 8:30am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (571) 272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Shin-Hon Chen
Examiner
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SC

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